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3/24

DOCKET NO.: MSFT-1086   PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Matthew Papakipos et al

Serial No.: 08/845,526   Group Art Unit: 2671

Filing Date: 4/25/97   Examiner: M. PADMANABHAN

For: A METHOD AND SYSTEM FOR EFFICIENTLY DRAWING NURBS
SURFCES FOR 3D GRAPHICS

Box DSD
Commissioner for Patents and Trademarks
Washington, DC 20231

BOARD OF PATENT APPEALS AND INTERFERENCES

RECEIVED 2003 MAR 11 PM 2:14

POWER OF ATTORNEY WITH REVOCATION

Revoking any and all powers of attorney heretofore given in the matter of the above-

entitled application, the undersigned, assignee of the entire interest in the above-identified

application, hereby appoints Steven J. Rocci, Registration No. 30,489, of the firm Woodcock

Washbum LLP, One Liberty Place – 46th Floor, Philadelphia, Pennsylvania, as attorney, with

full power of substitution and revocation, to prosecute this application, to make alterations

and amendments therein, to receive the patent, and to transact all business in the Patent and

Trademark Office connected therewith.

DOCKET NO.: MSFT-1066   - 2 -   **PATENT**

In addition, the assignee also appoints the following attorneys listed below of

MICROSOFT CORPORATION, One Microsoft Way, Redmond, Washington 98052 with

full power of substitution and revocation, to prosecute this application, to make alterations

and amendments therein, to receive the patent and to transact all business in the Patent and

Trademark Office connected therewith.

Daniel D. Crouse   Registration No. 32,022

Send all future correspondence and address all telephone calls to:

Steven J. Rocci
WOODCOCK WASHBURN LLP
One Liberty Place - 46th Floor
Philadelphia, PA 19103
Telephone: (215)568-3100

STATEMENT UNDER 37 C.F.R. 3.73(b)

MICROSOFT CORPORATION, a corporation of the State of Washington,

states that it is the assignee of the entire right, title, and interest in the patent

application/patent identified above by virtue of:

A.   ☐ An assignment from the inventor(s) of the patent application/patent

identified above.

☐ 1.   The assignment was recorded in the Patent and Trademark

Office at Reel _____ Frame _____.

☐ 2.   The assignment has not yet been recorded. A copy of the

assignment is attached.

OR

B.   ☐ A chain of title from the inventor(s), of the patent application/patent

identified above, to the current assignee as shown below:

DOCKET NO.: MSFT-1066   - 3 -   **PATENT**
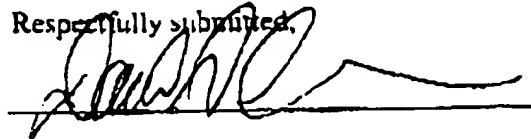
From the inventors to: <u>Silicon Graphics, Inc.</u> This assignment has not

been recorded. A copy thereof is attached.

From: **<u>Silicon Graphics, Incorporated</u>** To: **<u>Microsoft Corporation</u>**,

dated September 28, 2001 This assignment has not yet been recorded.

A copy thereof is attached.

   ⸹   Copies of assignments or other documents in the chain of title are

attached.

The undersigned has reviewed all the documents in the chain of title of the

patent application identified above and, to the best of undersigned's knowledge and belief,

title is in the assignees identified above. The undersigned (whose title is supplied below) is

empowered to act on behalf of the assignee, **MICROSOFT CORPORATION**.

Respectfully submitted,

Date: 3 - 7 - 03

Name: DANIEL D. CROUSE

Title: Assistant Secretary

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PTAS

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

DECEMBER 20, 2002

WOODCOCK WASHBURN LLP
STEVEN J. ROCCI
ONE LIBERTY PLACE, 46TH FLOOR
PHILADELPHIA, PENNSYLVANIA 19103-7301

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RECORDATION DATE: 12/19/2002   REEL/FRAME: 013307/0049
                                      NUMBER OF PAGES: 3

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:
    PAPAKIPOS, MATTHEW N.   DOC DATE: 04/23/1997

ASSIGNOR:
    GOSSETT, CARROLL PHILIP   DOC DATE: 04/21/1997

ASSIGNOR:
    PAPPAS, CHRISTIAN   DOC DATE: 04/21/1997

ASSIGNOR:
    MORETON, HENRY P   DOC DATE: 04/22/1997

ASSIGNOR:
    WILLIAMSON, ROBERT J.   DOC DATE: 04/21/1997

ASSIGNEE:
    SILICON GRAPHICS, INC.
    2011 NORTH SHORELINE BOULEVARD
    MOUNTAIN VIEW, CALIFORNIA 94043

013307/0049 PAGE 2

SERIAL NUMBER: 08845526
PATENT NUMBER:

FILING DATE: 04/25/1997
ISSUE DATE:

ALLYSON PURNELL, EXAMINER
ASSIGNMENT DIVISION
OFFICE OF PUBLIC RECORDS

RECORDATION FORM COVER SHEET
PATENTS ONLY

To The Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):	2. Name and address of receiving party(ies):
Matthew N. Papakipos — April 23, 1997 (Date of Execution) First Assignor	Name: Silicon Graphics, Inc Street Address: 2011 North Shoreline Boulevard City: Mountain View State: California ZIP 94043
Carroll Philip Gossett — April 21, 1997 (Date of Execution) Second Assignor	Additional name(s) & address attached? ☐ YES ☒ NO
Christian Peppas — April 21, 1997 (Date of Execution) Third Assignor	3. Nature of Conveyance (check only one): ☒ New Assignment ☐ Merger ☐ License Agreement ☐ Security Agreement ☐ Change of Name ☐ Other
Henry P. Moreton — April 22, 1997 (Date of Execution) Fourth Assignor	☐ Cross-reference of Assignment filed in United States Application No. ___ / ___ , recorded on ___ at Reel No. ___ and Frame No. ___
Robert J. Williamson — April 21, 1997 (Date of Execution) Fifth Assignor	
_____ Date of Execution Sixth Assignor	

Additional name(s) of conveying party(ies) attached? ☐ YES ☒ NO

4. Identification of Application number(s), patent number(s) OR date of execution of application to which assignment refers:		Date application was signed by the first named executing inventor
Application Nos.: 08/845,526 filed April 25, 1997	Patent Nos.:	
		(Fill-in this date only if assignment is filed together with a new application)

5. Name and address of party to whom correspondence concerning documents should be mailed:	6. Total number of applications and patents involved: One
Name: Steven J. Rocci WOODCOCK WASHBURN LLP One Liberty Place - 46th Floor Philadelphia, Pennsylvania 19103-7301 215-568-3100	7. Total fee (37 CFR 3.41): $40.00 ☐ Enclosed ☒ Authorized to be charged to Deposit Account Number 23-3050
	8. Please charge any deficiency or credit any overpayment to Deposit Account Number 23-3050

DO NOT USE THIS SPACE

9. Statement and signature.
To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Louise Ochrick — _Louise H. Ochrick_ (Signature) — December 19, 2002 (Date)
Name of Person Signing/Reg. No.

Total number of pages including cover sheet, assignment documents and additional pages attached thereto: 3

Mail documents to be recorded with required cover sheet information to:
Commissioner of Patents and Trademarks
Box Assignments
Washington, D.C. 20231

Assignment to Silicon Graphics, Inc.

In consideration of good and valuable consideration, receipt of which is hereby acknowledged, I

Matthew N. Papakipos, Carroll Philip Gossett, Christian Pappas, Henry P. Moreton, Robert J. Williamson

do hereby sell, assign and transfer unto Silicon Graphics, Inc. (hereinafter called Silicon Graphics), a Delaware Corporation having its principal place of business at 2011 North Shoreline Boulevard, Mountain View, California 94043-1389, and its successors and assigns, the entire right, title, and interest for the United States and all foreign countries, in and to any and all Improvements, including the right of priority in, to, and under, the application for the United States patent entitled:

A METHOD AND SYSTEM FOR EFFICIENTLY EVALUATING AND DRAWING NURBS SURFACES FOR 3D GRAPHICS

x filed herewith and the inventions set forth and described therein, and any and all Letters Patent of the United States and of countries foreign thereto which may be granted thereon or therefore; or

____ Serial No.: _____ filed on _____ and the inventions set forth and described therein, and any and all Letters Patent of the United States and of countries foreign thereto which may be granted thereon or therefore;

Further, we have agreed to assign to Silicon Graphics all inventions (except as otherwise limited by law) which relate to Silicon Graphics business and which were first conceived or actually reduced to practice during our employment by Silicon Graphics;

And for the above consideration, we agree promptly upon request of Silicon Graphics, its successors or assigns, to execute and deliver without further compensation any power of attorney, assignment, application, whether original, continuation, divisional or reissue, or other papers which may be necessary or desirable fully to secure to Silicon Graphics, its successors and assigns, the inventions described in said application and all patent rights therein, in the United States and in any country foreign thereto, and to cooperate and assist in the prosecution of interference proceedings involving said inventions and in the adjudication or reexamination of said Letters Patent provided the expenses which may be incurred by me in lending such cooperation and assistance are paid by Silicon Graphics;

We further covenant with Silicon Graphics, its successors, assigns, and legal representatives that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned;

In witness whereof, we hereunto set our hands and seal.

Inventor's Signature: _____ Date: 4/23/97

Inventor's Signature: _____ Date: _____

Inventor's Signature: _____ Date: _____

Inventor's Signature: _____ Date: _____

Inventor's Signature: _____ Date: _____

Inventor's Signature: _____ Date: _____

Inventor's Signature: _____ Date: _____

Inventor's Signature: _____ Date: _____

Patent

Docket No.: _SGI 15-4-453.00_

Assignment to Silicon Graphics, Inc.

In consideration of good and valuable consideration, receipt of which is hereby acknowledged, I
Matthew N. Papakipos, Carroll Philip Gossett, Christian Pappas,
Henry P. Moreton, Robert J. Williamson
do hereby sell, assign and transfer unto Silicon Graphics, Inc. (hereinafter called Silicon Graphics), a Delaware Corporation having its principal place of business at 2011 North Shoreline Boulevard, Mountain View, California 94043-1389, and its successors and assigns, the entire right, title, and interest for the United States and all foreign countries, in and to any and all improvements, including the right of priority in, to, and under, the application for the United States patent entitled:

A METHOD AND SYSTEM FOR EFFICIENTLY EVALUATING AND DRAWING NURBS SURFACES FOR 3D GRAPHICS

__X__ filed herewith and the inventions set forth and described therein, and any and all Letters Patent of the United States and of countries foreign thereto which may be granted thereon or therefore; or

_____ Serial No.: _____ filed on _____ and the inventions set forth and described therein, and any and all Letters Patent of the United States and of countries foreign thereto which may be granted thereon or therefore;

Further, we have agreed to assign to Silicon Graphics all inventions (except as otherwise limited by law) which relate to Silicon Graphics business and which were first conceived or actually reduced to practice during our employment by Silicon Graphics;

And for the above consideration, we agree promptly upon request of Silicon Graphics, its successors or assigns, to execute and deliver without further compensation any power of attorney, assignment, application, whether original, continuation, divisional or reissue, or other papers which may be necessary or desirable fully to secure to Silicon Graphics, its successors and assigns, the inventions described in said application and all patent rights therein, in the United States and in any country foreign thereto, and to cooperate and assist in the prosecution of interference proceedings involving said inventions and in the adjudication or reexamination of said Letters Patent provided the expenses which may be incurred by me in lending such cooperation and assistance are paid by Silicon Graphics;

We further covenant with Silicon Graphics, its successors, assigns, and legal representatives that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned;

In witness whereof, we hereunto set our hands and seal.

Inventor's Signature:	_____	Date:	_____
Inventor's Signature:	_____ (CPG)	Date:	4/21/97
Inventor's Signature:	Christian Pappas	Date:	4/21/97
Inventor's Signature:	_____	Date:	4/22/97
Inventor's Signature:	Robert Williamson	Date:	4/21/97
Inventor's Signature:	_____	Date:	_____
Inventor's Signature:	_____	Date:	_____
Inventor's Signature:	_____	Date:	_____

Page 1 of 2

EXHIBIT A

ASSIGNMENT

WHEREAS, SILICON GRAPHICS, INC., a Delaware Corporation, (hereinafter referred to as "Assignor") owns all right, title and interest in and to the inventions, patents and patent applications (hereinafter referred to as the "Intellectual Property") identified in Schedule A attached hereto; and

WHEREAS, MICROSOFT CORPORATION, a Washington Corporation, (hereinafter referred to as "Assignee"), is desirous of acquiring the entire domestic and foreign right, title, and interest in and under the Intellectual Property.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor assigns and transfers to the Assignee and the Assignee's legal representatives, successors and assigns, pursuant to the terms of a concurrently executed Confidential Patent Assignment Agreement, its full and exclusive rights in and to the Intellectual Property in the U.S. and every foreign country and its entire right, title, and interest in and to the Intellectual Property and related applications (e.g., provisional applications, non-provisional applications, continuations, continuations-in-part, divisionals, reissues, reexaminations, National phase applications, including petty patent applications, and utility model applications) that may be filed in the United States and every foreign country on the Intellectual Property, and extensions or derivations thereof, both foreign and domestic, that may issue thereon, and we do hereby authorize and request the Commissioner of Patents to issue U.S. patents to the above-mentioned Assignee agreeably with the terms of this assignment document.

ASSIGNOR HEREBY AUTHORIZES the Assignee to insert in Schedule A to this assignment document the filing date and application number of any application if the date and number are unavailable at the time this document is executed.

UPON SAID CONSIDERATION, Assignor conveys to the Assignee the right to make application in its own behalf for protection of the Intellectual Property in the U.S. and countries foreign to the U.S. and to claim under the Patent Cooperation Treaty, the International Convention and/or other international arrangement for any such application the date of any earlier U.S. application (or any other application on the invention) to gain priority with respect to other applications.

In WITNESS WHEREOF, Assignor has caused one of its officers to hereunder set his hand on the date shown below.

Date 9/28/01   *Sandra Escuer*

                                       Senior Vice President
                                       _____
                                       Title

STATE OF Washington)
) SS:
COUNTY OF King   )

On this 28th day of September 2001, before me, a Notary Public in and for said county, appeared _____, who is personally known to me to be the same person whose name is subscribed to the foregoing assignment document, and acknowledged that he/she signed and delivered the document as his/her free and voluntary act for the uses and purposes therein set forth.

                                       Melissa Mael
                                       _____
                                       Notary Public

{SEAL}   My Commission Expires: 10-9-01

2

Schedule A - U.S. Patents

	Country	Patent No.	Title	Issue Date
Digital Media	US	5,506,624	Rotating Sample of Video Images	4/9/1996
	US	5,745,713	Movie-Based Facility for Launching Application Programs or Services	4/28/1998
	US	5,774,666	System and Method for Displaying Uniform Network Resource Locators Embedded in Time-Based Medium	6/30/1998
	US	5,987,508	System and Method for Displaying an Active URL During Playback of a Media File or Media Broadcast	11/16/1999
	US	5,808,662	Synchronized, Interactive Playback of Digital Movies Across a Network	9/14/1998
	US	5,943,347	Apparatus and Method for Error Concealment in an Audio Stream	8/24/1999
	US	6,005,560	High Performance Player for Distributed, Time-Based Media	12/21/1999
	US	6,147,695	System and Method for Combining Multiple Video Streams	11/14/2000
	US	6,075,906	System and Method for the Scaling of Image Streams that Use Motion Vectors	6/13/2000
	US	D366,585	Video Camera Used with Personal Computer	12/26/1995
	US	5,604,866	Flow Control System Having a Counter in Transmitter for Decrementing and Incrementing Based Upon Transmitting and Received Message Size Respectively for Indicating Free Space in Receiver	2/18/1997
	US	5,311,329	Digital Filtering for Lenticular Printing	5/10/1994
	US	5,438,429	Digital Filtering for Lenticular Printing	8/1/1995
	US	6,070,002	System Software for Use in a Graphics Computer System Having a Shared System Memory	3/30/2000
	US	5,649,186	System and Method for a Computer-Based Dynamic Information Clipping Service	
Internet	US	5,737,560	Graphical Method and System for Accessing Information on a Communications Network	4/7/1998
	US	5,877,767	Graphical Method and System for Accessing Information on a Communications Network	3/2/1999
	US	5,742,768	System and Method for Providing and Displaying a Web Page Having an Embedded Menu	
	US	5,890,170	Method and Apparatus for Publishing Documents in a Hypertextual Network Environment	3/30/1999
	US	6,026,433	Method of Creating and Editing a Web Site in a Client-Server Environment Using Customizable Web Site Templates	2/15/2000
	US	6,072,491	Method and Computer Program Product for Accessing a Web Site	6/6/2000
	US	6,098,096	Web-Site Delivery	8/1/2000
	US	6,098,092	Server to Dynamically Generate Graphics for the World Wide Web	8/1/2000
	US	6,189,029	Web Survey Tool Builder and Result Compiler	2/13/2001
	US	6,081,829	General Purpose Web Annotations Without Modifying Browser	6/27/2000
	US	6,199,099	Method and Apparatus for Providing an Expandable, Hierarchical Index in a Hypertextual, Client-Server Environment	3/6/2001
	US	6,012,055	Mechanism for Integrated Information Search and Retrieval from Diverse Sources Using Multiple Navigation Methods	1/4/2000
	US	4,772,881	Pixel Mapping Apparatus for Color Graphics Display	9/20/1988
Graphics Rendering	US	5,038,297	Method and Apparatus for Cleaning a Region of Z-Buffer	8/6/1991
	US	5,197,125	Clock Switching Circuit for Asynchronous Clocks of Graphics Generation Apparatus	3/23/1993
	US			

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Schedule A - U.S. Patents

Country	Patent No.	Title	Issue Date
US	4,771,278	Dual Clock Shift Register	9/13/1988
US	4,951,232	Method for Updating Pipelined Single Port Z-Buffer by Segments on a Scan Line	8/21/1990
US	4,789,927	Interleaved Pipeline Parallel Processing Architecture	12/6/1988
US	5,113,490	Method for Forming a Computer Model from an Intersection of a Cutting Surface with a Bounded Volume	5/12/1992
US	5,182,548	Method and Apparatus for Painting on a Computer	1/26/1993
US	4,991,110	Graphics Processor with Staggered Memory Timing	2/5/1991
US	5,129,059	Graphics Processor with Staggered Memory Timing	7/7/1992
US	5,163,145	Method and Apparatus for Producing a Visually Improved Image in a Computer System	3/9/1993
US	5,847,700	Integrated Apparatus for Displaying a Plurality of Modes of Color Information on a Computer Output Display	12/8/1998
US	5,371,518	Video Timing and Display ID Generator	12/6/1994
US	5,621,432	Method and Apparatus for Generating Display Identification Information	4/15/1997
US	5,051,737	Efficient Graphics Process for Clipping Polygons	9/24/1991
US	5,266,941	Apparatus and Method for Controlling Storage of Display Information in a Computer System	11/30/1993
US	5,394,170	Apparatus and Method for Controlling Storage of Display Information in a Computer System	2/28/1995
US	5,768,552	Graphical Representation of Computer Network Topology and Activity	6/16/1998
US	5,585,824	Graphics Memory Apparatus and Method	12/17/1996
US	5,818,433	Graphics Memory Apparatus and Method	10/6/1998
US	5,307,450	Z-Subdivision for Improved Texture Mapping	4/26/1994
US	5,230,039	Texture Range Controls for Improved Texture Mapping	7/20/1993
US	5,343,558	Method for Scan Converting Shaded Triangular Polygons	8/30/1994
US	5,347,618	Method for Display Rendering by Determining the Coverage of Pixels in Polygons	9/13/1994
US	5,345,252	High Speed Cursor Generation Apparatus	9/6/1994
US	6,266,199	Method and Apparatus for Accomplishing Z-Buffering by Prediction	11/23/1993
US	5,548,709	An Apparatus and Method for Integrating Texture Memory and Interpolation Logic in a Computer System	8/20/1996
US	5,706,481	Apparatus and Method for Integrating Texture Memory and Interpolation Logic in a Computer System	1/6/1998
US	5,684,939	Antialiased Imaging with Improved Pixel Supersampling	11/4/1997
US	6,072,500	Antialiased Imaging with Improved Pixel Supersampling	6/6/2000
US	5,581,680	Method and Apparatus for Antialiasing Raster Scanned Images	12/3/1996
US	5,636,338	Method for Designing Curved Shapes for Use by a Computer	8/3/1997
US	5,515,484	Method and Apparatus for Rendering Volumetric Images	5/7/1996
US	5,369,739	Apparatus and Method for Generating Point Sample Masks in a Graphics Display System	11/29/1994
US	5,528,737	Processor-Based Method for Rasterizing Polygons at an Arbitrary Precision	6/18/1996
US	5,805,782	A Method and Apparatus for Projective Texture Mapping Rendered from Arbitrarily Positioned and Oriented Light Source	9/8/1998
US	5,682,554	Apparatus and Method for Handling Data Transfer Between a General Purpose Computer and a Cooperating Processor	10/28/1997

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Schedule A - U.S. Patents

Country	Patent No.	Title	Issue Date
	5,457,779	System for Accessing Graphic Data in a SIMD Processing Environment	10/10/1995
US			
	5,671,401	Apparatus for Efficiently Accessing Graphic Data for Rendering on a Display	9/23/1997
US			
	5,742,749	A Method and Apparatus for Shadow Generation Through Depth Mapping	4/21/1998
US			
	5,490,240	A System and Method of Generating Interactive Computer Graphic Images Incorporating Three Dimensional Textures	2/6/1996
US			
	5,438,654	System and Method for Sharpening Texture Imagery in Computer Generated Interactive Graphics	8/1/1995
US			
US	5,455,627	Programmable Video Output Format Generator	10/3/1995
	5,471,572	A System and Method for Adding Detail to Textures Imagery in Computer Generated Interactive Graphics	11/28/1995
US			
	5,704,024	A Method & Apparatus for Generating Reflection Vectors Which can be Unnormalized and For Using These Reflection Vectors to Index Locations on an Environment Map	12/30/1997
US			
	5,848,082	An Efficient Algorithm for Computer Texture Coordinates for Lines & Polygons	7/16/1997
US			
	5,528,738	Method and Apparatus for Antialasing Raster Scanned, Polygonal Shaped Images	6/18/1996
US			
	5,619,597	Method for Sampling a Uniform Spatially-Distributed Sequence of Pixels in a Block	8/8/1997
US			
	5,710,876	A Computer Graphics System for Rendering Images Using Full Spectral Illumination Data	1/20/1998
US			
US	5,835,133	Optical System for Single Camera	11/10/1998
US	5,606,461	Programmable Video Frame Detector	3/4/1997
US	5,703,810	Improved DRAM for Texture Mapping	12/30/1997
US	5,943,058	Texture Mapping Circuit for Performing Data Interpolations	8/24/1999
	5,982,939	System and Method for Antialasing of Texture Edges	11/9/1999
US			
	5,844,567	Computer Graphics System and Method for Texture Mapping Using Triangular Interpolation	12/1/1998
US			
	5,819,017	Apparatus and Method for Selectively Storing Depth Information of a 3-D Image	10/6/1998
US			
	5,877,771	A Method and Apparatus for Supersampling Based on the Local Rate of Change in Texture	3/2/1999
US			
	5,760,783	A Method and Apparatus for Providing Texture Using a Selected Portion of a Texture MIP-MAP	6/2/1998
US			
US	5,818,613	System and Method for Color Space Conversion	10/6/1998
US	5,736,988	Apparatus and Method for Accelerated Tiled Data Retrieval	4/7/1998
	5,657,479	Hierarchical Display List Processing in Graphics Data Retrieval System	8/12/1997
US			
US	5,936,628	Computer Graphics Silhouette Load Management	8/10/1999
	5,845,874	System and Method for Creating Visual Images of Aircraft Wake Vortices	12/8/1998
US			
	6,226,003	Method for Rendering Silhouette and True Edges of 3-D Line Drawings with Occlusion	5/1/2001
US			
	6,131,189	System and Method to Efficiently Represent Aliases and Indirect Memory Operations in Static Single Assignment Form During Compilation	10/10/2000
US			
	5,946,113	System and Method for Color Space Conversion Using an Expanded Color Space	8/31/1999
US			
	6,147,772	System and Method for Color Space Conversion Using an Expanded Color Space	11/14/2000
US			
	5,831,620	System and Computer-Based Method for Creating Real-Time Mirror Reflections	11/3/1998
US			

—

Mar-11-03 09:39am From-WOODCOCK WASHBURN 33 +2155683439 T-424 P.16/24 F-292

Schedule A - U.S. Patents

Country	Patent No.	Title	Issue Date
US	5,815,162	Computational Low-Cost Anti-Aliased Bresenham Line Algorithm	9/29/1998
US	6,249,289	Multi-Purpose High Resolution Distortion Correction	6/19/2001
US	5,949,424	Method, System and Computer Program Product for Bump Mapping in Tangent Space	9/7/1999
US	5,880,736	Method, System and Computer Program Product for Shading	3/9/1999
US	6,163,319	Method, System and Computer Program Product for Shading	12/19/2000
US	6,104,417	Unified Memory Computer Architecture with Dynamic Graphics Memory Allocation	8/15/2000
US	6,154,784	Upstream Situated Apparatus and Method within a Computer System for Controlling Data Flow to a Downstream Situated Input/Output Unit	11/28/2000
US	6,078,331	A Method and System for Efficiently Drawing Subdivision Surfaces for 3D Graphics	6/20/2000
US	6,078,332	Real-Time Lighting Algorithm Using 3D Texture Mapping	6/20/2000
US	6,175,367	A Method and System for Real Time Illumination of Computer Generated Images	1/16/2001
US	6,002,406	System and Method for Storing and Accessing Data Representative of an Object in Various Levels of Detail	12/14/1999
US	6,154,215	Method and Apparatus for Maintaining Multiple Representations of a Same Scene in Computer Generated Graphics	11/28/2000
US	6,057,850	Blended Texture Illumination Mapping	5/2/2000
US	5,907,462	Latching Assembly for a Computer	6/1/1999
US	6,215,495	A Platform Independent Application Program Interface for Interactive 3D Scene Management	4/10/2001
US	6,108,007	Method, System and Computer Program Product for Increasing Interpolation Precision Using Multi-Channel Texture Mapping	8/22/2000
US	6,104,415	Method for Accelerating Minified Textured Cache Access	8/15/2000
US	6,232,981	Method for Improving Texture Locality for Pixel Quads by Diagonal Level of Detail Calculation	5/15/2001
US	6,232,979	Method, System and Computer Program Product for Fast Computation Using Parallel Multi-Channel Resampling and Blending	5/15/2001
US	6,246,415	Method and Apparatus for Culling Polygons	6/12/2001
US	6,239,413	Method and System for a RISC Graphics Pipeline Optimized for High Clock Speeds by Using Recirculation	5/22/2001
US	6,075,546	A Packetized Command Interface to a Graphics Processor	6/13/2000
US	6,230,177	Method and Apparatus for Performing Fast Fourier Transforms	5/8/2001
US	6,252,610	Method and Apparatus for Efficiently Switching State in a Graphics Pipeline	6/26/2001
US	6,128,638	Method and Apparatus for Calculating X to the Exponent of Y	10/3/2000
US	6,133,901	Method and System for Width Independent Antialiasing	10/17/2000
US	6,091,425	Constant Multisample Image Coverage Mask	7/18/2000
US	6,205,531	Method and Apparatus for Virtual Address Translation	3/20/2001
US	6,259,568	Apparatus and Method for Extending Computational Precision of a Computer System Having a Modular Arithmetic Processing Unit	7/3/2001
US	6,229,547	System and Method for Rendering Multi-Planar Reformations Using Bi-Linear Interpolation	5/8/2001

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Schedule A - U.S. Patents

Country	Patent No.	Title	Issue Date
	6,268,861	Volumetric Three-Dimensional Fog Rendering Technique	7/31/2001
US			
	6,163,320	Method and Apparatus for Radiometrically Accurate Texture-Based Lightpoint Rendering Technique	12/18/2000
US			

Schedule A - Pending Patent Applications

	Country	Application No.	Title	Filing Date
	US	196100	"Pen-Based Interface for a Notepad Computer"	11/20/1998
Tablet Computing	US	196114	"Pen-Based Computer System"	11/20/1998
Graphics Rendering	US	09/005129	System and Method for the Direct Rendering of Curve Bounded Objects	1/9/1998
	US	191458	Floating Point Gamma Correction Method And System	11/12/1998
	US	09/217398	High Precision Texture Wrapping Method And Device	12/21/1998
	US	265487	Method And Device For Associating A Pixel With One Of A Plurality Of Regions In A Logarithm Or Cosine Space	3/9/1999
	US	072050	Method and System For Providing Texture Using A Selected Portion of a Texture Map	5/5/1998
	US	033663	Improved Chroma-Key Suppression Method and Apparatus	3/3/1998
	US	09/244275	Memory Chip For Use in a Unified Memory Architecture	2/3/1999
	US	244281	Memory Controller for Controlling Memory in a Computer System Having a Unified Memory Architecture	2/3/1999
	US	244254	I/O Chip in a Computer System Having a Unified Memory Architecture	2/3/1999
	US	220078	System and Method for Morphing Based on Multiple Weighted Parameters	12/23/1998
	US	846626	A Method and System for Efficiently Evaluating and Drawing Nurbs Surfaces for 3D Graphics	4/25/1997
	US	899123	System and Method for Displaying Different Portions of an Object in Different LOD Levels	7/23/1997
	US	070808	System and Method for Displaying Different Portions of an Object in Different Levels of Detail	5/1/1998
	US	074037	Occlusion Culling For Complex Transparent Scenes in Computer Generated Graphics	5/8/1998
	US	137005	Method and System for Performing Rasterization in Producing Three-Dimensional Graphics Using YUV Color Space and Combining Same with Digital Video in YUV Color Space	8/20/1998
	US	035378	Subsampled Texture Edge Antialiasing	3/5/1998
	US	956537	Method and Apparatus for Providing Image and Graphics Processing Using a Graphics Rendering Engine	10/23/1997
	US	937793	Method, System and Computer Program Product for Providing Illumination in Computer Graphics Shading and Animation	9/25/1997
	US	09/048099	Method for Efficient Handling of Texture Cache Misses by Recirculation	3/26/1998
	US	09/081073	Method and Apparatus for Line Antialiasing by Gamma-Corrected Area Calculation	5/19/1998
	US	246135	System and Method for Rendering an Image	2/8/1999
	US	09/445907	A Packetized Command Interface to a Graphics Processor	11/23/1998
	US	09/549188	A Packetized Command Interface to a Graphics Processor	4/13/2000
	US	09/145518	Method and Apparatus For Rasterizing in a Hierarchical Tile Order	9/2/1998
	US	978755	Range Correct Layered Fog Model Using 3D Texture	11/26/1997
	US	111284	Backface Primitives Culling	7/6/1998
	US	201814	Multi-Threaded Texture Modulation for Axis Aligned Volume Rendering	12/1/1998
	US	247422	Multsample Dither Method With Exact Reconstruction	2/10/1999

Schedule A - Pending Patent Applications

Country	Application No.	Title	Filing Date
US	09/227227	Method and Apparatus For Synchronizing Graphics Pipelines	1/8/1999
US	218121	Scaleable Network Based Computer Graphics System	12/21/1998
US	346071	Computer System Having A Distributed Texture Memory Architecture	7/1/1999
US	09/707418	Method and Apparatus for Radiometrically Accurate Texture-Based Lightpoint Rendering Technique	11/6/2000
US	348882	Antialiasing Method Using Barycentric Coordinates Applied to Lines	7/1/1999
US	08/220596	System and Method For Transitioning Between Two Floors, Allowing For The Use of Higher Order Interpolation	12/28/1998
US	09/416055	Method, System, and Computer Program Product For Compositing True Colors and Intensity-Mapped Colors into A Frame Buffer	10/12/1999
US	218042	System and Method For Locking Disparate Video Formats	12/22/1998
US	09/247885	Method For Interfacing to Ultra-High Resolution Output Devices	2/10/1999
US	232360	Method For Tiling Multiple Displays to Generate a Large Area Display of Moving Data	1/15/1999
US	294846	Combined Floating-Point Logic Core and Frame Buffer	4/19/1999
US	09/294450	Apparatus and Method for Sharing Antialiasing Memory Across Multiple Displays	4/19/1999
US	277587	Transformation Pipeline for the Computing Distortion Correction Geometry for any Design Eyepoint, Display Surface Geometry and Projector Position	3/26/1999
US	385270	Antialiasing Method for Computer Graphics	3/23/1999
US	09/220156	Processor for Geometry Transformations and Lighting Calculations	12/23/1998
US	263185	System and Method for Maintaining Time Dependencies in Conversions That Include Parallel Operations	3/6/1999
US	09/467561	A Method and System for Efficiently Implementing Two Speed Vertex Lighting in Hardware	12/20/1999
US	275725	Method and Apparatus for Texture Memory Management	3/24/1999
US	09/247816	Method and Apparatus for Early Culling of Occluded Objects	2/9/1999
US	346541	Method and System for Generating Light Values for a Set of Vertices	7/1/1999
US	273347	Method and System for Dynamic Clock Frequency Adjustment for a Graphics Subsystem in a Computer	3/19/1999
US	306967	Fine Grain Multi-Pass for Multiple Texture Rendering	5/7/1999
US	344805	Method and System for Dynamic Texture Replication on a Distributed Memory Graphics Architecture	8/24/1999
US	345365	Cache Memory For high Latency and Out-of-Order Return of Texture Data	7/1/1999
US	328000	Method for Virtual Clipping A Three-Dimensional Graphics Image	6/8/1999
US	09/502497	A Method and System For Efficient Simplification of Tetrahedral Meshes Used in 3D Volumetric Representations	2/11/2000

Schedule A - Pending Patent Applications

Country	Application No.	Title	Filing Date
US	09/377778	Method, System and Computer Program Product for Multi-Pass Bump-Mapping into an Environment Map	8/20/1999
US	328164	Method and Apparatus for a Modified Linear Filter Using Texture Data as Phase Angle	8/8/1999
US	303894	View-Dependent Layer Ordering Method and System	5/3/1999
US	300916	Method and System for Iterative Morphing	4/28/1998
US	293369	Apparatus and Method for Increasing the Bandwidth to a Graphics Subsystem	4/19/1999
US	266493	Device, Method and System for Generating Per-Pixel Light Values Using Texture Parameters	3/9/1999
US	386379	Method, System, and Computer Program Product for Efficient Buffer Level Management of Memory-Buffered Graphics Data	8/31/1999
US	386378	Method, System and Computer Program Product for Overlapping Graphics Data Collection and Transmission Using a Single Processor	8/31/1999
US	220082	Method, System and Computer Program Product for Modified Blending Between Clip-Map Tiles	12/23/1998
US	09/369359	Reflection Space Image Based Rendering	8/6/1999
US	09/727985	Texture Generating Apparatus For Dynamic Interference Checking	11/30/2000
US	09/678979	Method and System for Evaluating Derivatives in Screen Space Using Perspective Corrected Barycentric Coordinates	9/29/2000
US	363636	Method and System for Transforming Color Coordinates by Direct Calculation	7/30/1999
US	09/575740	Cheap, Well-Behaved Affine Transformation of Bounding Spheres	5/23/2000
US	348885	Dual Mode Device and Method for Generating Vector Cross Products or DOT Products	7/1/1999
US	406951	System and Method for Load Balancing in a Multi-Channel Graphics System	9/30/1999
US	09/404808	Method, System, and Computer Program Product for Using Alpha Values to Control Pixel Blending	9/24/1999
US	09/461345	Method, System, and Computer Program Product for Generating Spatially Varying Effects in a Digital Image	12/15/1999
US	09/565562	Method and Apparatus for Rendering a Quadrangle Primitive	5/4/2000
US	60/295854	Reducing Fill and Improving Quality of Interlaced Displays Using Multi-Sampling	6/6/2001
US	09/832138	Scene Representation Method and System	4/10/2001
US	09/569648	Method and System for Implementing Graphics Control Constructs	5/12/2000
US	09/569650	Tools Indexing System and Method	5/12/2000
US	09/569621	Method and System for Accelerating Noise	5/12/2000
US	09/569520	Data Retrieval Method and System	5/12/2000
US	09/569654	Extended Range Pixel Display Method and System	5/12/2000
US	09/609988	Method, System and Computer Program Product for Implementing Derivative Operators with Graphics Hardware	6/29/2000
US	09/636907	Method and System for Executing SIMD Instructions Using Graphics Technology	8/15/2000
US	09/572452	Method, System, and Computer Program Product for Simulating Camera Depth-of-Field Effects in a Digital Image	5/17/2000
US	09/469858	An Efficient Graphics Pipeline With a Pixel Cache and Data Pre-Fetching	12/22/1999

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Schedule A - Pending Patent Applications

Country	Application No.	Title	Filing Date
US	09/470948	A System and Method for Linearly Mapping a Tiled Image Buffer	12/22/1999
US	09/473208	A Graphics Geometry Cache	12/27/1999
US	09/473210	View Volume Clip-Check in Object Space	12/27/1999
US	09/684810	Method, System, and A Computer Program Product For Filtering A Texture Applied To A Surface Of A Computer Generated Object	10/10/2000
US	09/599971	Method and System for Performing Multi-Texturing Operations Using Recursive Interleaving	6/21/2000
US	09/688978	System and Method for Efficiently Controlling a Graphics Rendering Pipeline	10/17/2000
US	60/255853	Method, System and Computer Program Product for Determining Regions That Are Occluded From An Observation Point	12/18/2000
US	09/684812	Method, System, and Computer Program Product for Anisotropic Filtering and Applications Thereof	10/10/2000
US	60/253948	System, Method, and Computer Program Product For General Environment Mapping	11/30/2000
US	60/258325	Hardware-Accelerated Volume Lighting Algorithm	12/28/2000
US	60/252094	Rendering Volumetric Fog and Other Gaseous Phenomena	11/21/2000
US	60/238128	Texture Tiling With Adjacency Information	10/6/2000
US	60/298416	A Volumetric Based Method and System for Visualizing Datasets	6/18/2001
US	60/252092	Rendering Volumetric Fog and Other Gaseous Phenomena Using an Alpha Channel	11/21/2000
US	60/252093	Method, System, and Computer Program Product for Rendering Multicolored Layered Fog with Self-Shadowing and Scene Shadowing	11/21/2000
US	357829	General Purpose Web Annotations Without Modifying Browser	7/19/1999
US	09/557148	Graphical Method and System for Accessing Information on a Communications Network	4/25/2000
US	09/415037	System and Method for Media Stream Indexing and Synchronization	10/7/1999
US	09/632558	Workstation for Processing and Producing a Video Signal	8/4/2000
US	09/632562	System and Method for Pre-Processing a Video Signal	8/4/2000
US	09/632462	System and Method for Producing a Video Signal	8/4/2000
US	09/632461	System and Method for Packing and Unpacking Video Data	8/4/2000
US	08/800421	Synchronizing Motion and Time-Based Data for Transfer Between a Server and a Client	7/25/1997
US	09/441728	Seamless Playback of Multiple Clips of Media Data Across a Data Network	11/16/1999
US	09/441722	Frame-Accurate Transport of Media Data Across a Data Network	11/16/1999
US	08/020072	Backbone Network Movie Player	2/8/1998
US	035687	Preemptive Time Multiplexed Shared Memory Access	3/5/1988
US	09/427197	Video Assistance System with Computer Generated Imagery Overlay	10/25/1999
US	09/099742	System and Method Using a Packetized Encoded Bitstream for Parallel Compression and Decompression	6/18/1998
US	09/518309	A Method and System for Efficiently Streaming 3D Animation Across a Wide Area Network	3/6/2000
US	09/466398	Constant Bitrate Algorithm for Block Based Image Compression	12/17/1999
US	09/539365	System and Method for Communicating Video Data in a Digital Media Device	3/31/2000

Internet

Digital Media

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Country	Application No.	Title	Filing Date
US	09/577171	Cost-Optimal Convolution Algorithm With Low or Null Latency	5/23/2000
US	09/544360	A Technique For Controlling Media Data Streams Using Embedded Controls	4/5/2000
US	09/521234	Apparatus and Method for Recognizing Color Space of a Digital Video Input	3/8/2000
US	09/628796	System and Method for Compressing Data	7/28/2000
US	09/628658	System and Method for Storing Compressed Data onto a Storage Medium	7/28/2000
US	60/281105	Method and Apparatus for Producing Digital Video from a General Digital Graphics Interface	

Schedule A - Foreign Patents and Applications

Country	Appl/Patent No.	Title	Foreign Filing Date	Issue Date	Status
EPO	96940509.8	Method, System And Computer Program Product For Providing Illumination In Computer Graphics Shading And Animation	9/25/1998		Abandoned
Japan	2000-513245	Method, System And Computer Program Product For Providing Illumination In Computer Graphics Shading And Animation	9/25/1998		Pending
PCT	US98/20008	Method, System And Computer Program Product For Providing Illumination In Computer Graphics Shading And Animation	9/25/1998		Pending
France	99042475.7	Method And Apparatus For Rasterizing In A Hierarchical Tile Order	5/17/2000		Pending
Japan	2000-868069	Method And Apparatus For Rasterizing In A Hierarchical Tile Order	6/2/2000		Pending
PCT	US99/19353	Method And Apparatus For Rasterizing In A Hierarchical Tile Order	8/23/1999		Pending
UK	99042475.7	Method And Apparatus For Rasterizing In A Hierarchical Tile Order	6/17/2000		Pending
EPO	902207.9	Method And Apparatus For Synchronizing Graphics Pipelines	7/11/2001		Pending
Japan		Method And Apparatus For Synchronizing Graphics Pipelines	7/6/2001		Pending
PCT	US00/00649	Method And Apparatus For Synchronizing Graphics Pipelines	1/7/2000		Pending
PCT	US00/10534	Combined Floating-Point Logic Core And Frame Buffer	4/19/2000		Pending
PCT	US00/107904	Method And Apparatus For Texture Memory Management	3/24/2000		Pending
PCT	US00/10579	Apparatus And Method For Increasing The Bandwidth To A Graphics Subsystem	4/19/2000		Abandoned
PCT	US00/06184	Device, Method And System For Generating Per-Pixel Light Values Using Texture Parameters	3/8/2000		Pending
PCT	US00/40768	Method, System And Computer Program Product For Overlapping Graphics Data Collection And Transmission Using A Single Processor	8/31/2000		Pending
PCT	US99/29984	Method, System And Computer Program Product For Modified Blending Between Clip-Map Tiles	12/17/1999		Abandoned
PCT	US00/21301	Workstation For Processing And Producing A Video Signal	8/4/2000		Abandoned
PCT	US00/21302	System And Method For Pre-Processing A Video Signal	8/4/2000		Abandoned
PCT	US00/21303	System And Method For Producing A Video Signal	8/4/2000		Abandoned
PCT	US00/21380	System And Method For Packing And Unpacking Video Data	8/4/2000		Pending
PCT	99909783.7	Preemptive Time Multiplexed Shared Memory Access	3/2/1999		Pending
EPO	2000-534947	Preemptive Time Multiplexed Shared Memory Access	3/2/1999		Pending
Japan	US99/04016	Preemptive Time Multiplexed Shared Memory Access	3/2/1999		Pending
PCT		System And Method For Compressing Data	7/28/2001		Pending
PCT		System And Method For Storing Compressed Data Onto A Storage Medium	7/27/2001	10/15/1991	Granted
PCT	1280870	Pixel Mapping Apparatus For Color Graphics		11/27/1997	Granted
Canada	DE3730196	Pixel Mapping Apparatus For Color Graphics		8/3/1995	Granted
Germany	527	Pixel Mapping Apparatus For Color Graphics		4/18/1990	Granted
Hong Kong	2913090	Pixel Mapping Apparatus For Color Graphics		12/28/1991	Granted
Japan	2193319	Pixel Mapping Apparatus For Color Graphics		6/28/1991	Granted
Singapore	2190319	Pixel Mapping Apparatus For Color Graphics		5/27/1994	Granted
UK	172327	Dual Clock Shift Register		6/28/1996	Granted
India	433573	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		6/28/1996	Granted
EPO	433573	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		5/28/1996	Granted
France	DE3882629071	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line			
Germany					

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Schedule — Foreign Patents and Applications

Country	Appl/Patent No.	Title	Foreign Filing Date	Issue Date	Status
Japan	2884290	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		2/12/1999	Granted
Korea	131820	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		12/4/1997	Granted
Switzerland	433373	Method For Updating Pipelined Single Port Z-Buffer By Segments On A Scan Line		5/29/1998	Granted
Canada	1276312	Interleaved Pipeline Parallel Processing Architecture		11/13/1990	Granted
EPO	959127038	An Apparatus And Method For Integrating Texture Memory And Interpolation Logic In A Computer System	3/7/1995		Pending
PCT	US95/02853	An Apparatus And Method For Integrating Texture Memory And Interpolation Logic In A Computer System	3/7/1995		Abandoned
JP	9510309	An Apparatus And Method For Integrating Texture Memory And Interpolation Logic In A Computer System	3/7/1995		
EPO	96925193	Apparatus And Method For Selectively Storing Depth Information Of A 3-D Image	8/18/1995		Abandoned
PCT	US96/13245	Apparatus And Method For Selectively Storing Depth Information Of A 3-D Image	8/18/1995		Abandoned
EPO	96930641.7	A Method And Apparatus For Providing Texture Using A Selected Portion Of A Texture Mip-Map	11/8/1996		Abandoned
PCT	US96/17073	A Method And Apparatus For Providing Texture Using A Selected Portion Of A Texture Mip-Map	11/8/1996		Abandoned
EPO	979176918	System And Method For Color Space Conversion Using An Extended Color Space	3/28/1997		Abandoned
PCT	US97/04591	System And Method For Color Space Conversion Using An Extended Color Space	3/28/1997		Abandoned
Canada	2214856	Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation	9/8/1997		Pending
EPO	973085978	Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation	9/8/1997		Pending
Japan	25113497	Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation	9/18/1997		Pending
Mexico	979496	Unified Memory Computer Architecture With Dynamic Graphics Memory Allocation	8/28/1997		Pending
PCT	US99/13075	Method And Apparatus For Virtual Address Translation	7/1/1999		Abandoned
PCT	US99/18802	System and Method for Combining Multiple Video Streams	8/28/1999		Abandoned
PCT	US90/0944	Digital Filtering for Lenticular Printing	8/18/1992		Abandoned
AU	9225485	Digital Filtering for Lenticular Printing	8/18/1992		Abandoned
PCT	US89/3924	Method and Apparatus for Clearing a Region of Z-Buffer	9/12/1989		Abandoned
EP	551261	Method and Apparatus for Clearing a Region of Z-Buffer	9/12/1989	2/7/1996	Abandoned
DE	68926651	Method and Apparatus for Clearing a Region of Z-Buffer	9/12/1989	3/21/1996	Abandoned
PCT	WO90/02991	Graphics Processor with Staggered Memory Timing	published 3/22/1990		Abandoned
PCT	WO91/12608	Method and Apparatus for Producing a Visually Improved Image in a Computer System	published 8/22/1991		Abandoned
AU	9173134	Method and Apparatus for Producing a Visually Improved Image in a Computer System	published 9/3/1991		Pending
PCT	US00/16745	Computer System having A Distributed Texture Memory Architecture	8/18/2000		

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